

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A Raman amplifier system comprising:

an optical wave guide ~~comprising a rib-like geometry of a~~ having an isotopically purified crystalline material ~~on an insulator layer,~~ for guiding an optical signal having a first wavelength, the crystalline material having a Raman wavelength shift,
a pump configured to pump light into the optical wave guide, the pump light having a second wavelength being substantially equal to the first wavelength minus the Raman wavelength shift.

2. (Original) The Raman amplifier system of claim 1, the crystalline material being a semiconductor material, preferably a semiconductor material from group IV, III-V or II-VI, such as silicon, indium-phosphite, gallium-arsenite or silicon-germanium.

3. (Canceled)

4. (Canceled)

5. (Currently Amended) The Raman amplifier system of claim 1, ~~the~~wherein said crystalline material ~~being an isotopically purified~~is a semiconductor, ~~preferably~~ isotopically purified silicon.

6. (Original) The Raman amplifier system of claim 1, the optical waveguide being provided by a membrane of a semiconductor layer.

7. (Original) The Raman amplifier system of claim 1, the optical waveguide being provided by a defect waveguide in a photonic crystal.

8. (Original) The Raman amplifier system of claim 1, further comprising a plurality of the pumps for separate Raman amplification of a plurality of optical signals having a plurality of wavelengths.

9. (Currently Amended) A method of generating a Raman gain, the method comprising the steps of:

providing an optical wave guide ~~comprising a rib-like geometry of a~~an ~~isotopically purified~~ crystalline material ~~on an insulator layer,~~
propagating an optical signal through the optical wave guide, the optical signal having a first wavelength,

introducing of pump light into the optical wave guide, the pump light having a second wavelength being substantially equal to the first wavelength minus the Raman wavelength shift.

10. (Original) The method of claim 9, further comprising:

propagating at least a second optical signal having a third wavelength through the optical wave guide,
introducing pump light into the optical wave guide, the pump light having a fourth wavelength being substantially equal to the third wavelength minus the Raman wavelength shift.

11. (Previously Presented) The Raman amplifier system of claim 1, wherein said rib-like structure comprises a layer of said crystalline material having a first thickness on either side of a rib section of greater thickness than said first thickness.

12. (New) The Raman amplifier system of claim 1, wherein said crystalline material comprises a rib-like geometry of crystalline material on an insulator layer.

13. (New) The Raman amplifier system of claim 5, wherein said crystalline material comprises silicon.

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14. (New) The method of claim 9, wherein said crystalline material comprises silicon.